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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,924	09/30/2003	David L. Muri	CM05236J	5163
22917	7590	12/22/2004	EXAMINER	
MOTOROLA, INC. 1303 EAST ALGONQUIN ROAD IL01/3RD SCHAUMBURG, IL 60196			SEFCHECK, GREGORY B	
			ART UNIT	PAPER NUMBER
			2662	

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/674,924	MURI, DAVID L.	
	Examiner	Art Unit	
	Gregory B Sefcheck	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 5, 7, 8, 14, 15, 17, 20, 21, 23, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Kimball (US005881053A).

- In regards to Claims 1-3, 5, 7, 8, 15, 17, 21, 23, and 25,

Kimball discloses a conference calling system apparatus and method for at least three participants in a wireless communication system (Title - Cert. of Correction; Abstract; claim 1,15,17 – apparatus and method for enabling group communications in a wireless system of at least three communication units).

Referring to Figs. 1A, 1B, and 2, Kimball discloses a receiver 46 at a base station 18 for receiving encoded voice signals from first, second, and third subscriber stations 12, 14, and 16, respectively, over corresponding inbound wireless channels (claim 1,15,17 – receiving device for receiving individual encoded voice signals, functions of original voice signals, over inbound wireless resources from the three communication units).

Kimball further discloses receiving device 44, control processor 62 and switch 64 for processing of the received encoded signals. Kimball shows processing that results

in a combined voice signal generated as a function of the individual voice signals from the three subscriber stations 12/14/16 (Fig. 2; Col. 4-5, lines 54-46; claim 1,15,17 – processing device adapted for performing an algorithm for generating a combined voice signal that is function of the three original voice signals and a combined encoded voice signal from the combined voice signal).

Kimball shows that the combined voice signal is encoded and transmitted to the subscriber stations 12/14/16 over corresponding outbound wireless channels (Col. 6, lines 27-65; claim 1,15,17 – transmitting device for transmitting the encoded voice signal to the three communication units over outbound wireless resources).

Kimball further discloses that the combined signal is a function of approximated representations of the original voice signals from each subscriber station produced through the use of individual coders (Figs. 1A-2; Col. 3, lines 59-67; claim 2,15,21 – processing device generates representations of an approximation of the first, second, and third original voice signals; claim 2,15,21 – combined voice signal is a function of at least a portion of the representations; claim 3 – processing device comprises first, second and third coders for generating representations).

Kimball discloses that the combined voice signal is determined through the control processor 62 selecting the representations of the original voice signals based on the speech activity level of each signal in relation to the other signals (Col. 5-6, lines 54-26; claim 5,15,23 – processing unit is adapted for selecting the representations to be included in combined voice signals based on whether representation has a

corresponding speech activity level exceeding a first threshold; claim 7,25 – first threshold is dynamically determined based on at least one factor).

Kimball discloses that a rate detector is used to determine which subscriber station users are speaking and which are listening (Col. 6, lines 1-11). Kimball discloses that the combined signal is generated such that the signal from the subscriber station user that is speaking is sent to the other subscriber stations (Col. 6, lines 11-14; claim 8,16 – processing unit adapted for generating combined encoded voice signal that is exclusive of first/second/third representation to be transmitted to first/second/third communication unit).

- In regards to Claims 14 and 20,

Kimball discloses a conference calling system apparatus and method for at least three participants in a wireless communication system that covers all limitations of the parent claim.

Kimball discloses implementation of the system and method in CDMA, utilizing unique spreading codes over inbound/outbound frequencies for receiving the individual voice signals and transmitting the combined signals between the base station and subscriber stations (Col. 5, lines 2-5 and 15-32; claim 14,20 - wireless system is a CDMA system where first/second/third encoded voice signals are received in first/second/third orthogonal spreading code over first/second/third inbound frequencies and combined encoded signal is transmitted in a set of corresponding orthogonal spreading codes over an outbound frequency).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11-13, 16, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimball.

- In regards to Claims 11, 13, 16, 18, and 19,

Kimball discloses a conference calling system apparatus and method for at least three participants in a wireless communication system that covers all limitations of the parent claims and the structural limitations of claim 16 that are common to claims 1 and 15.

Kimball does not explicitly disclose the conference calling system apparatus and method in a TDMA or FDMA system.

However, Kimball discloses TDMA, CDMA, and FDMA as several techniques for facilitating communications in which a large number of system users are present.

Kimball discloses that CDMA is used in the illustrative embodiment (Col. 5, lines 2-5; claim 11, 16, 18 – wireless system is a TDMA system where first/second/third encoded voice signals are received in first/second/third time slots over first/second/third frequencies and combined encoded signal is transmitted in a set of corresponding

outbound time slots; claim 13,19 – wireless system is a FDMA system where first/second/third encoded voice signals are received over first/second/third inbound frequencies and combined encoded signal is transmitted over corresponding outbound frequencies).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the conference calling system apparatus and method of Kimball to wireless systems utilizing TDMA and/or FDMA techniques as shown using CDMA. This would enable the improvements in speech quality provided by the system apparatus and method of Kimball to be realized in other multiple access techniques for facilitating communication between multiple users in a wireless network.

- In regards to Claim 12,

Kimball discloses a conference calling system apparatus and method for at least three participants in a wireless communication system that covers all limitations of the parent claim.

Kimball does not explicitly disclose a four-slot TDMA system.

Selection of the number of slots needed in a TDMA system is dependent on the number of users in the system and the requirements of those users. Applicant clearly shows that the a four-slot TDMA system would efficiently accommodate the four users depicted in Fig. 1 but that it is appreciated that many more subscriber units would

typically be coupled to the system (Pg. 3, lines 20-23; claim 12 – system is a four-slot TDMA system).

It would have been an obvious design choice to one of ordinary skill in the art at the time of the invention to implement the conference calling system apparatus and method of Kimball in a four-slot TDMA system. Choosing the number of slots to use in a TDMA system can impact the efficiency of the system based on the number of users, the bandwidth requirement of those users, and other system considerations.

5. Claims 4, 10 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimball in view of Dent (US005539730A).

- In regards to Claims 4, 10 and 22,

Kimball discloses a conference calling system apparatus and method for at least three participants in a wireless communication system that covers all limitations of the parent claim.

Kimball does not explicitly disclose PCM representations of the original voice signals.

Dent discloses FDMA/TDMA/CDMA radio access methods that utilize digital signal processors for generating and processing PCM speech representations of voice signals for communication of the voice signals (Fig. 8; Abstract; Col. 8, lines 33-39; Col.

10-11, lines 40-31; claim 4,22 – representations are PCM representations of original voice signals; claim 10 – processing unit is a DSP).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize PCM representations of the original voice signals, as taught by Dent, in the system apparatus and method of Kimball. This would allow integration of other wireless system utilizing digital voice signal with Kimball's system, as pulse code modulation is the most common technique for digitizing an analog voice signal.

6. Claims 6 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimball in view of Hemkumar (US006434110B1).

- In regards to Claims 6 and 24,

Kimball discloses a conference calling system apparatus and method for at least three participants in a wireless communication system that covers all limitations of the parent claim. Kimball discloses selecting the representations to be used in the combined signal based on whether the representation has a speech activity level that exceeds those of the other received signals.

Kimball does not explicitly disclose selecting the representations to be used in the combined signal based on whether the representation has a speech activity level that exceeds a predetermined threshold.

Hemkumar discloses a full-duplex speakerphone circuit including a double-talk detector. Hemkumar discloses a speech event is detected when a power estimator level rises above the background noise level by a defined threshold (Col. 11, lines 45-47; claim 6,24 – first threshold is predetermined).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system apparatus and method of Kimball by selecting the representations to be used in the combined signal based on whether the representation has a speech activity level that exceeds a predetermined threshold, as shown by Hemkumar. This modification would enable the system and method of Kimball to identify more than one received signal of a speaking user such that the speech of both users could be processed for transmission to the other non-speaking subscriber stations.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kimball in view of Gilhousen et al. (US004901307), hereafter Gilhousen.

- In regards to Claim 9,

Kimball discloses a conference calling system apparatus and method for at least three participants in a wireless communication system that covers all limitations of the parent claim.

Kimball does not explicitly show the use of the apparatus in a repeater.

Gilhousen discloses the use of CDMA for providing high capacity communications to, from, or between a plurality of system users using satellite or terrestrial repeaters (Title; Abstract; reference incorporated by reference in Kimball; claim 9 – apparatus included in a repeater).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the apparatus of Kimball in a repeater, as taught by Gilhousen. Use of repeaters extends the range of viable communication and would allow conferencing between users of a wireless system at greater distances.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Gorday et al. (US006707826B1) discloses a method and apparatus for wireless bandwidth efficient multi-way calling
- Yahagi (US006442176B1) discloses a signal transmission system in a mobile communication network
- Snelling et al. (US006418131B1) discloses spectrum monitoring for PSTN subscribers
- Ashley et al. (US006134232A) discloses a method and apparatus for providing a multi-party speech connection for use in a wireless communication system

- Anderson et al. (US005436896A) discloses a conference bridge for packetized speech-signal networks
- Champion (US005272698A) discloses multi-speaker conferencing over narrowband channels
- Schilling (US005263045A) discloses a spread spectrum conference call system and method
- Eastmond et al. (US004852086) discloses an SSB communication system with FM data capability

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory B Sefcheck whose telephone number is 571-272-3098. The examiner can normally be reached on Monday-Friday, 8:00am-4:30pm.

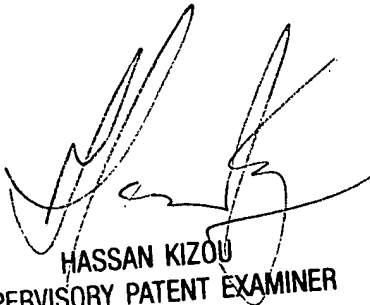
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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